

WHAT IS CLAIMED IS:

1. A method for controlling exposure, wherein a recording medium is irradiated with a light beam emitted from a light source which is moved along one of main scanning and sub-scanning directions by a light source scanning apparatus, the recording medium being moved along the other of the main scanning and the sub-scanning directions, to scan-expose the recording medium, the method comprising:

a distance correction processing, in which during scan-exposing of the recording medium, the light source is moved toward and away from the recording medium synchronously with the movement of the light source by the light source scanning apparatus, on the basis of distance correction data which is generated by measuring distance between the recording medium and the light source while the light source is being moved by the light source scanning apparatus.

2. The method for controlling exposure of claim 1, the method further comprising a light-emission correction processing, wherein, during scan-exposing of the recording medium, light-emission of the light source is controlled synchronously with the movement of the light source by the light source scanning apparatus, on the basis of light-emission correction data which is generated by measuring a position irradiated with the light beam emitted from the light source onto the recording medium while the light source is being moved by the light source scanning apparatus.

3. The method for controlling exposure of claim 1, wherein the distance correction processing comprises the steps of:

a) initiating movement of the light source by the light source scanning apparatus;

b) reading the distance correction data for one step immediately before exposure, the one step being a predetermined amount by which the light source is moved for exposure by the light source scanning apparatus;

c) identifying that the light source has reached a distance at which the movement for exposure for the one step is initiated;

d) carrying out the movement for exposure for the one step of the light source by the light source scanning apparatus, and repeating the steps b), c) and d); and

e) returning the light source to the position where the scan-expose initiated, when the light source has reached a position at which the exposure of the recording medium is completed.

4. The method for controlling exposure of claim 3, wherein the distance correction processing is repeated a predetermined number of times.

5. The method for controlling exposure of claim 2, wherein the light-emission correction processing comprises the steps of:

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- a) initiating movement of the light source by the light source scanning apparatus;
  - b) reading the light-emission correction data for one step immediately before exposure, the one step being a predetermined amount by which the light source is moved for exposure by the light source scanning apparatus;
  - c) setting light-emission initiating timing on the basis of the light-emission correction data which has been read;
  - d) identifying that the light source has reached a position at which the movement for exposure for the one step is initiated;
  - e) carrying out the light-emission of the light source at the light-emission initiating timing which has been set, and repeating the steps b), c), d) and e); and
  - f) returning the light source to the position at which the scan-expose initiated, when the light source has reached a position at which the exposure for the recording medium is completed.

6. The method for controlling exposure of claim 5, wherein the distance correction processing and the light-emission correction processing are performed concurrently.

7. A method for controlling exposure, wherein a recording medium is irradiated with a light beam emitted from a light source which is moved along one of main scanning and sub-scanning directions by a light source scanning apparatus, the recording medium being moved

along the other of the main scanning and the sub-scanning directions, to scan-expose the recording medium, the method comprising:

light-emission correction processing, wherein, during scan-exposing of the recording medium, light-emission of the light source is controlled synchronously with the movement of the light source by the light source scanning apparatus, on the basis of light-emission correction data which is generated by measuring a position irradiated with the light beam emitted from the light source onto the recording medium while the light source is being moved by the light source scanning apparatus.

8. The method for controlling exposure of claim 7, the method further comprising distance correction processing, wherein, during scan-exposing of the recording medium, the light source is moved toward and away from the recording medium synchronously with the movement of the light source by the light source scanning apparatus, on the basis of distance correction data which is generated by measuring distance between the recording medium and the light source while the light source is being moved by the light source scanning apparatus.

9. The method for controlling exposure of claim 7, wherein the light-emission correction processing comprises the steps of:

a) initiating movement of the light source by the light source scanning apparatus;

b) reading the light-emission correction data for one step immediately before exposure, the one step being a predetermined amount by which the light source is moved for exposure by the light source scanning apparatus;

c) setting light-emission initiating timing on the basis of the light-emission correction data which has been read;

d) identifying that the light source has reached a position at which the movement for exposure for the one step is initiated;

e) carrying out the light-emission of the light source at the light-emission initiating timing which has been set, and repeating the steps b), c), d) and e); and

f) returning the light source to the position at which the scan-expose initiated, when the light source has reached a position at which the exposure for the recording medium is completed.

10. The method for controlling exposure of claim 9, wherein the light-emission correction processing is repeated a predetermined number of times.

11. The method for controlling exposure of claim 4, wherein the distance correction processing comprises the steps of:

a) initiating movement of the light source by the light source scanning apparatus;

b) reading the distance correction data for one step immediately before exposure, the one step being a predetermined amount by which

the light source is moved for exposure by the light source scanning apparatus;

c) identifying that the light source has reached a distance at which the movement for exposure for the one step is initiated;

d) carrying out the movement for exposure for the one step of the light source by the light source scanning apparatus, and repeating the steps b), c) and d); and

e) returning the light source to the position where the scan-expose initiated, when the light source has reached a position at which the exposure of the recording medium is completed.

12. The method for controlling exposure of claim 11, wherein the distance correction processing and the light-emission correction processing are performed concurrently.

13. A scan-exposure apparatus, wherein a recording medium is irradiated with a light beam emitted from a light source which is moved along one of main scanning and sub-scanning directions, the recording medium being moved along the other of the main scanning and the sub-scanning directions, to scan-expose the recording medium, the apparatus comprising:

a) a light source scanning apparatus, which moves the light source in one of the main scanning and the sub-scanning directions synchronously with the movement of the recording medium moving in the other of the main scanning and the sub-scanning directions;

b) a light source moving apparatus, which moves the light source toward and away from the recording medium;

c) a distance correction data memory, which stores distance correction data, which is generated by measuring distance between the recording medium and the light source while the light source is being moved by the light source scanning apparatus; and

d) a movement controlling apparatus, which, during the scan-exposing of the recording medium, operates the light source moving apparatus on the basis of the distance correction data which has been stored in the distance correction data memory, synchronously with the movement of the light source by the light source scanning apparatus.

14. The scan-exposure apparatus of claim 13, the apparatus further comprising:

a) a light-emission correction data memory, which stores light-emission correction data, which is generated by measuring a position irradiated by the light beam emitted from the light source onto the recording medium while the light source is being moved by the light source scanning apparatus; and

b) a light-emission controlling apparatus, which, during the scan-exposing of the recording medium, controls light-emission of the light source on the basis of the light-emission correction data which has been stored in the light-emission correction data memory,

synchronously with the movement of the light source by the light source scanning apparatus.

15. A scan-exposure apparatus, wherein a recording medium is irradiated with a light beam emitted from a light source which is moved along one of main scanning and sub-scanning directions, the recording medium being moved along the other of the main scanning and the sub-scanning directions, to scan-expose the recording medium, the apparatus comprising:

a) a light source scanning apparatus, which moves the light source in one of the main scanning and the sub-scanning directions synchronously with the movement of the recording medium in the other of the main scanning and the sub-scanning directions;

b) a light-emission correction data memory, which stores light-emission correction data, which is generated by measuring a position irradiated by the light beam emitted from the light source onto the recording medium while the light source is being moved by the light source scanning apparatus; and

c) a light-emission controlling apparatus, which, during the scan-exposing of the recording medium, controls light-emission of the light source on the basis of the light-emission correction data which has been stored in the light-emission correction data memory, synchronously with the movement of the light source by the light source scanning apparatus.



16. The scan-exposure apparatus of claim 15, the apparatus further comprising:

a) a light source moving apparatus, which moves the light source toward and away from the recording medium;

b) a distance correction data memory, which stores distance correction data, which is generated by measuring distance between the recording medium and the light source while the light source is being moved by the light source scanning apparatus; and

c) a movement controlling apparatus, which, during the scan-exposing of the recording medium, operates the light source moving apparatus on the basis of the distance correction data which has been stored in the distance correction data memory, synchronously with the movement of the light source by the light source scanning apparatus.

17. A scan-exposure apparatus, wherein a recording medium is irradiated with a light beam emitted from a light source which is moved along one of main scanning and sub-scanning directions, the recording medium being moved along the other of the main scanning and the sub-scanning directions, to scan-expose the recording medium, the apparatus comprising:

a) a light source scanning apparatus, which moves the light source in one of the main scanning and the sub-scanning directions synchronously with the movement of the recording medium in the other of the main scanning and the sub-scanning directions;

b) a light source moving apparatus, which moves the light source toward and away from the recording medium;

c) a distance correction data memory, which stores distance correction data, which is generated by measuring distance between the recording medium and the light source while the light source is being moved by the light source scanning apparatus;

d) a light-emission correction data memory, which stores light-emission correction data, which is generated by measuring a position irradiated by the light beam emitted from the light source onto the recording medium while the light source is being moved by the light source scanning apparatus;

e) a movement controlling apparatus, which, during the scan-exposing of the recording medium, operates the light source moving apparatus on the basis of the distance correction data synchronously with the movement of the light source by the light source scanning apparatus; and

f) a light-emission controlling apparatus, which, during the scan-exposing of the recording medium, controls light-emission of the light source on the basis of the light-emission correction data synchronously with the movement of the light source by the light source scanning apparatus.